

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Canceled).
2. (Currently amended): A waveguide optical device comprising:  
a waveguide for guiding light wherein said waveguide comprises a ridge waveguide portion formed as a substantially stripe convex portion extending in a guiding direction, and a gain waveguide portion which guides light in a gain region optically coupled with said ridge waveguide portion; A device according to claim 1,  
~~further comprising:~~
  - an electrode formed on ~~the~~ an upper surface of said waveguide;
  - an extended portion extending from said gain waveguide portion in ~~the~~ a lateral direction of said waveguide; and
  - an electrode pad connected to said electrode and extending on the upper surface of said extended portion.
3. (Currently amended) A device according to claim 2, wherein ~~the~~ a resistance in at least a portion of said extended portion is increased to suppress injection of an electric current from said electrode pad.
4. (Currently amended) A device according to claim 3, wherein ~~the~~ a length of said gain waveguide portion is not more than 1/10 ~~the~~ a overall length of said waveguide.
5. (Original) A device according to claim 4, further comprising a diffraction grating formed along said waveguide to give optical perturbation to light to be guided,

wherein said gain waveguide portion has a substantially phase shift effect on light guided in said waveguide.

6. (Original) A device according to claim 5, wherein said waveguide optical device is a distributed feedback laser which generates laser oscillation in said waveguide, and the phase shift effect of said gain waveguide portion changes in accordance with a bias current or threshold current supplied to said laser.

7. (Original) A device according to claim 6, wherein the change in the phase shift effect is so produced as to cancel chirping.

8. (Original) A device according to claim 2, wherein an insulating layer is formed between said electrode pad and at least a part of said extended portion, in order to suppress injection of an electric current from said electrode pad.

9. (Currently amended) A device according to claim 8, wherein ~~the~~ a length of said gain waveguide portion is not more than 1/10 ~~the~~ a overall length of said waveguide.

10. (Original) A device according to claim 9, further comprising a diffraction grating formed along said waveguide to give optical perturbation to light to be guided,

wherein said gain waveguide portion has a substantially phase shift effect on light guided in said waveguide.

11. (Original) A device according to claim 10, wherein said waveguide optical device is a distributed feedback laser which generates laser oscillation in said waveguide, and the phase shift effect of said gain waveguide portion changes in accordance with a bias current or threshold current supplied to said laser.

12. (Original) A device according to claim 11, wherein the change in the phase shift effect is so produced as to cancel chirping.

13. (Currently amended) A device according to claim 2, wherein ~~the~~ a length of said gain waveguide portion is not more than 1/10 ~~the~~ a overall length of said waveguide.

14. (Original) A device according to claim 2, further comprising a diffraction grating formed along said waveguide to give optical perturbation to light to be guided,

wherein said gain waveguide portion has a substantially phase shift effect on light guided in said waveguide.

15. (Currently amended) A waveguide optical device comprising:  
a waveguide for guiding light wherein said waveguide comprises a ridge  
waveguide portion formed as a substantially stripe convex portion extending in a  
guiding direction, and a gain waveguide portion which guides light in a gain region  
optically coupled with said ridge waveguide portion, A device according to claim 1,  
wherein ~~the~~ a length of said gain waveguide portion is not more than 1/10 ~~the~~ an overall length of said waveguide.

16. (Original) A device according to claim 15, further comprising a diffraction grating formed along said waveguide to give optical perturbation to light to be guided,

wherein said gain waveguide portion has a substantially phase shift effect on light guided in said waveguide.

17. (Original) A device according to claim 16, wherein said waveguide optical device is a distributed feedback laser which generates laser oscillation in

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said waveguide, and the phase shift effect of said gain waveguide portion changes in accordance with a bias current or threshold current supplied to said laser.

18. (Original) A device according to claim 17, wherein the change in the phase shift effect is so produced as to cancel chirping.